

Amendments to the Specification

Please replace the paragraph at page 6, line 25, through page 7, line 13, with the following amended paragraph:

In another embodiment, the sensing elements include magnetoresistive sensors. Similar to the inductive coils, images of the material properties can be obtained by scanning rows of magnetoresistive elements oriented parallel to the extended portions of the drive winding. This image can be formed from the electrical property measurements across and along the weld region. In an embodiment, the weld quality is indicated by the surface and through thickness properties of the weld region. The weld quality can be indicated by the presence of a crack-like defect, an LOP defect, the presence of an internal flaw, or a weak metallurgical bond. In another embodiment, an LOP defect can be detected by scanning the sensor over the top surface such that the LOP defect is on the opposite side of the weld. The magnetoresistive sensing elements may further comprise encircling secondary coils to improve the dynamic range of the measurements and bias the magnetoresistive sensors, as described in patent application 09/____ 10/045,650, filed November 8, 2001, ~~entitled "Deep Penetration Magnetoquasistatic Arrays,"~~ by Sheiretov et al., ~~Attorney Docket No. 1884.2007-001,~~ the entire teachings of which are incorporated herein by reference. This provides a potential replacement for radiography or phased array ultrasonics for thick plate (0.25 to 1 inch thick) inspections. The secondary coils can be used in a feedback configuration with external electronic circuitry to maintain the field in the vicinity of the magnetoresistive element.